

# Biology Complex Legacy Materials Disposition Initiative

Through up-front planning and commitment to safety, pollution prevention, and cost savings, the Legacy Materials Disposition Initiative (LMDI) consolidated and reused a significant amount of instruments, equipment, and supplies during the Biology Cleanout in buildings 9207A, 9210, and 9224 at the Y-12 National Security Complex (Y-12). Through LMDI personnel commitment and coordination, materials were reused/recycled. The facilities, which housed UT-Battelle staff and researchers, mainly consisted of research laboratories, personnel offices, work and general purpose areas, the legendary Mouse House laboratory, and storage areas. As shown in the before and after pictures, the LMDI truly “emptied out the space.”



Source reduction, reuse, and recycling techniques used by LMDI included segregating materials and wastes, reusing materials within UT-Battelle, returning materials to vendors, sending materials to UT-Battelle Property Sales, donating materials, and recycling.

**Reused materials** included 2 spill kit carts with supplies and 2 spill kit drums with supplies sent to the Chemical Management Center; 32 gas cylinders; 1 pallet of research grade glass sent to the Glass Shop; laboratory supplies (instruments, equipment, and HPLC needles); 10 cubic yards (yd<sup>3</sup>) of new light bulbs, electrical supplies, and wiring; and 4 pallets of janitorial supplies.

**Returned materials to vendors** included reverse osmosis water treatment unit and small deionized water unit saving 6 months of rental fees and 5 large dry ice boxes allowing deposit to be refunded.

**Materials sent to Property Sales** included 80 yd<sup>3</sup> of plastic fluorescent light covers, 34 tractor-trailer loads of equipment and furniture, and 23 yd<sup>3</sup> of new and used general office supplies.

**Donated materials** included 3,750 pounds (lb) of animal feed and bedding to the Knoxville Zoo; 75 thermometers, 10 research grade microscopes with accessories, and 6 pallets of research grade glass to schools; and 22,000 books and periodicals and 1,200 magazine holders and six magazine racks to Knoxville College.

**Recycled materials** included 100,000 lb of scrap metal, 300 lb of lead, 90 toner cartridges, 385 gallons of used oil, 80 yd<sup>3</sup> of mixed paper, 64 yd<sup>3</sup> of cardboard, 60 yd<sup>3</sup> of wood, 91 pallets of mouse cages and plastic bottles, 11 pallets of computer equipment, and 1 large fork lift battery.

Through the comprehensive use of all of these methods, valuable alternatives were implemented that reduced waste, provided cost savings, and resulted in lower waste disposal costs. Generated wastes were further segregated and managed to maximize use of on-site landfills and to minimize the amount of waste sent to off-site facilities. In total, 2,400 cubic yards of material were recycled, reused, donated, or sold saving similar landfill space and \$140,000 in disposal costs and resulting in a savings of \$135,000 in acquisition and \$245,000 in resale cost.

# High Flux Isotope Reactor (HFIR)

## Ni-Cd Battery Reuse

The Research Reactor Division (RRD) and the Oak Ridge National Laboratory (ORNL) Pollution Prevention Program coordinated efforts with the Engineering Science and Technology Division (ESTD) to transfer 260 Nickel-Cadmium (Ni-Cd) batteries and 3 carboys of electrolyte solution for reuse by ESTD. RRD had used these 10-year-old batteries for back-up power for various HFIR applications. ESTD will use these batteries for energy storage for various photovoltaic projects. The types of batteries transferred included SBL-304, M-404, H-306 (also known as SBH-59), and NSH-150.



If ESTD had to buy these batteries, it would have cost the division approximately \$63,500. Additionally, if feasible, reclamation of these batteries would have cost the laboratory at least \$7,300. If reclamation had not been feasible, disposal as a hazardous waste would have cost the laboratory \$109,000. The only cost of this reuse option was for transportation within the laboratory.

Consequently, this October 2003 Ni-Cd battery reuse within the laboratory:

- eliminated the generation of 4,100 kilograms (9,000 pounds) of hazardous waste
- avoided a total cost to the laboratory ranging from \$70,800 to \$172,500.

